Direct formula for Pi

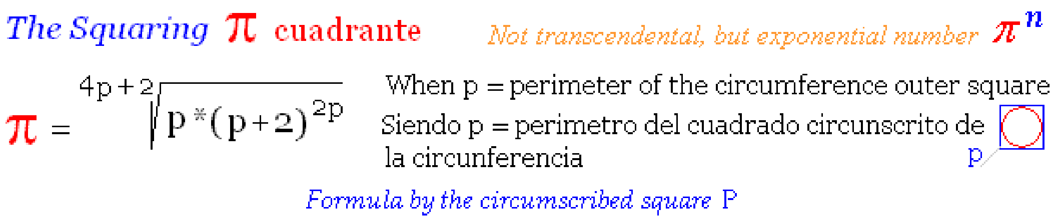
The squaring Pi, *as exponentiable number*

Author: Fernando Mancebo Rodriguez (ferman)—2009-1-8

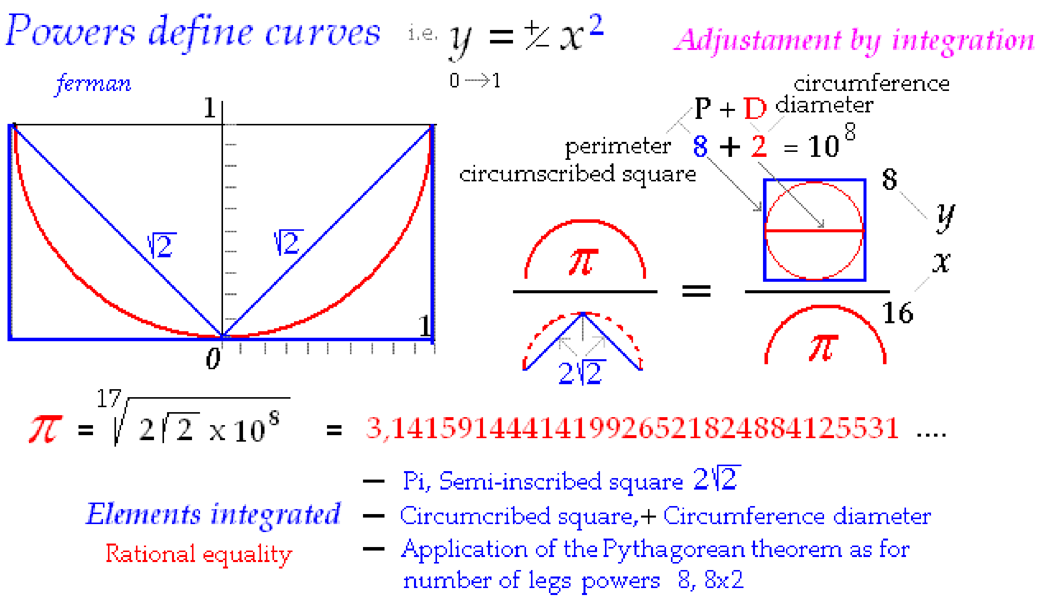
Introduction: Abstract

The squaring Pi is a number that is obtained following the general logical sense of using the component parameters of the corresponding geometric figures for getting with direct mathematical formulas the final value of this number Pi.
This case the used parameters for Pi could be any one of: Circumference diameter (2), circumscribed square, inscribed square, interrelation among the anterior ones, etc.

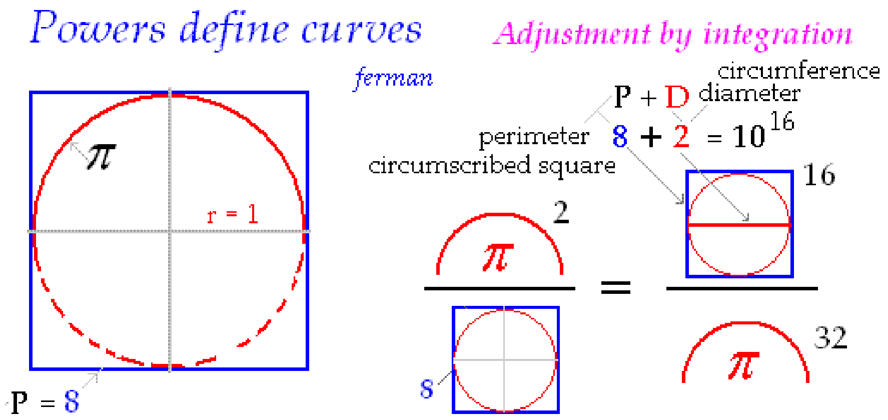
Principles and general explanation



Geometric principle: "Never the addition of straight lines can form a curve line or circumference"
This way, the algorithmic method of addition of polygons' sides (inscribed or circumscribed to the circumference) is an erroneous and anti-nature method to solve the length of circumference, because of what produces this method are simply tangents to the circumference.
It is erroneous because straight lines and curves have different dimensional characteristics (Structural Principle)
Nevertheless, and as we can see in the drawing inside the Cartesian coordinates, power functions can define curves, and vice versa, many simple curves can be represented by power functions.

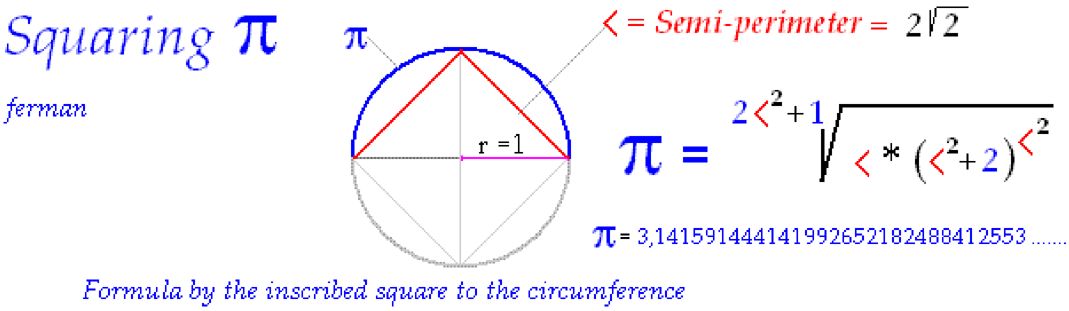


So the algorithms ways are alone methods of approximation that don't give us the exact expression of Pi; instead, the correct mathematical expression is made by the Squaring Pi, (which are based in functions of the parameters that build the circumference)

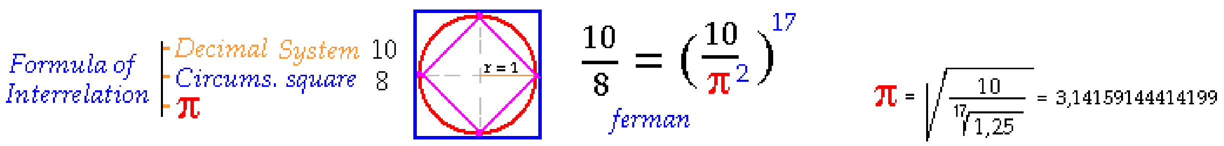


$$\pi = \sqrt[34]{8 \times 10^{16}} = 3{,}1415914441419926521824884125531 \ \ldots.$$

Thus algorithms go extending the curved circumference line to convert it into a straight line, and in this position is measured, while the squaring pi measure the circumference in its natural curved line.



Philosophy of Pi: The number Pi can't be a transcendental number, but a simple and easy to obtain number, also function of the inscribed and circumscribed squares to the circumference, as well of its diameter, like it is seen geometrically.



Main properties of Squaring Pi

* Exponential number (not transcendental) Pi^n
* Direct function of the diameter of the circumference (r=1). (below)
* Direct function of the inscribed and circumscribed squares to the circumference.
* Function of integration among Squaring Pi - circumscribed square - and - decimal system (10) -anterior drawing-
* Its powers square with diverse inscribed and circumscribed circumferences and squares among them.

The squaring π in function of the circumference diameter (2)

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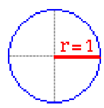
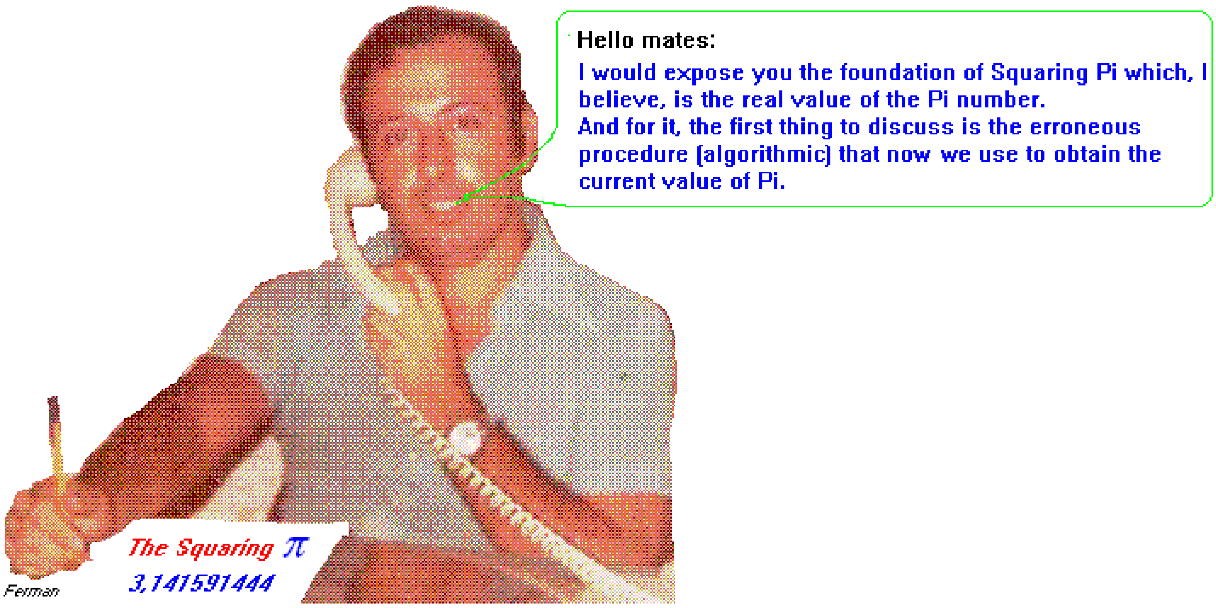
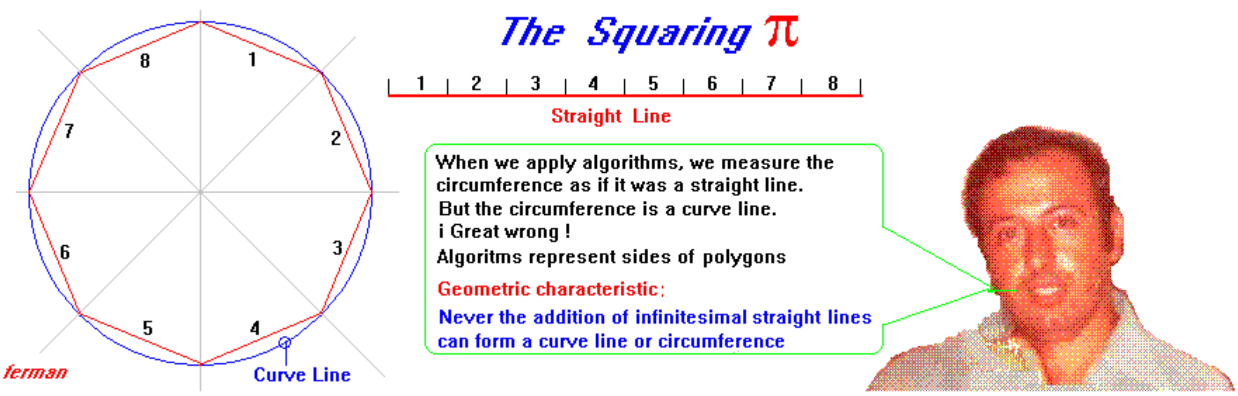
$$\pi = \sqrt[2^5+2]{2^3 \times (2^3+2)^{2^4}} = 3{,}14159144414199\ldots$$

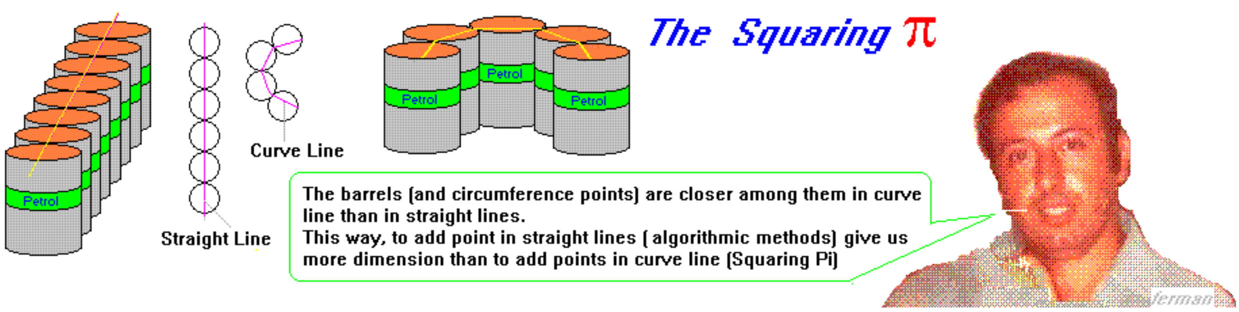


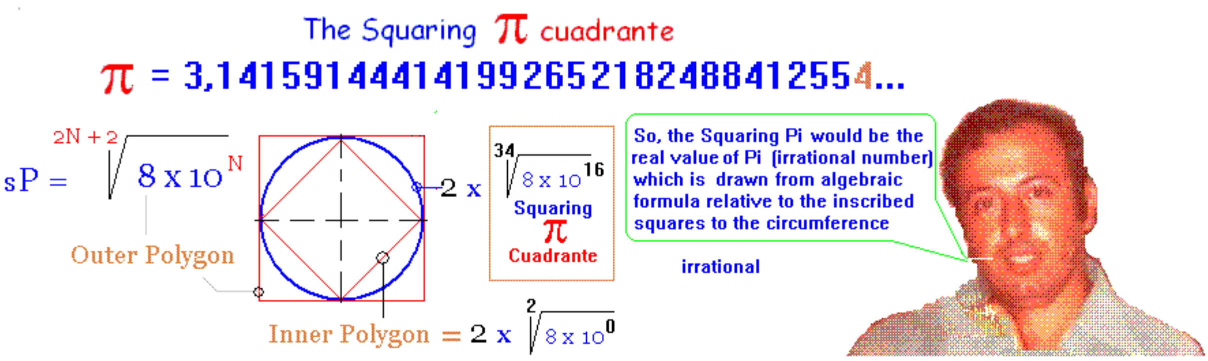
(2^3 x ((2^3 + 2)^ (2^4)))^ (1/(2^5 + 2))

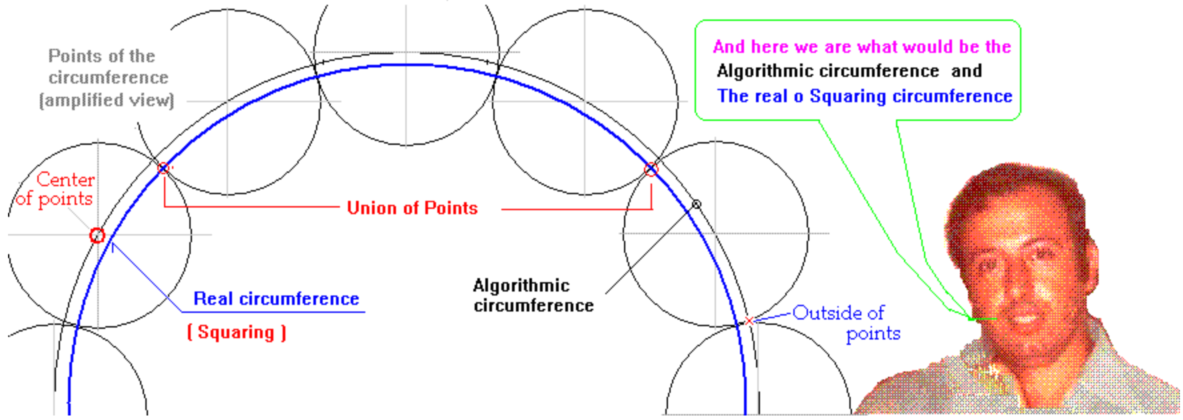
To begin, let me make a simple summary in comic form to introduce the meaning and foundation of the Squaring Pi.



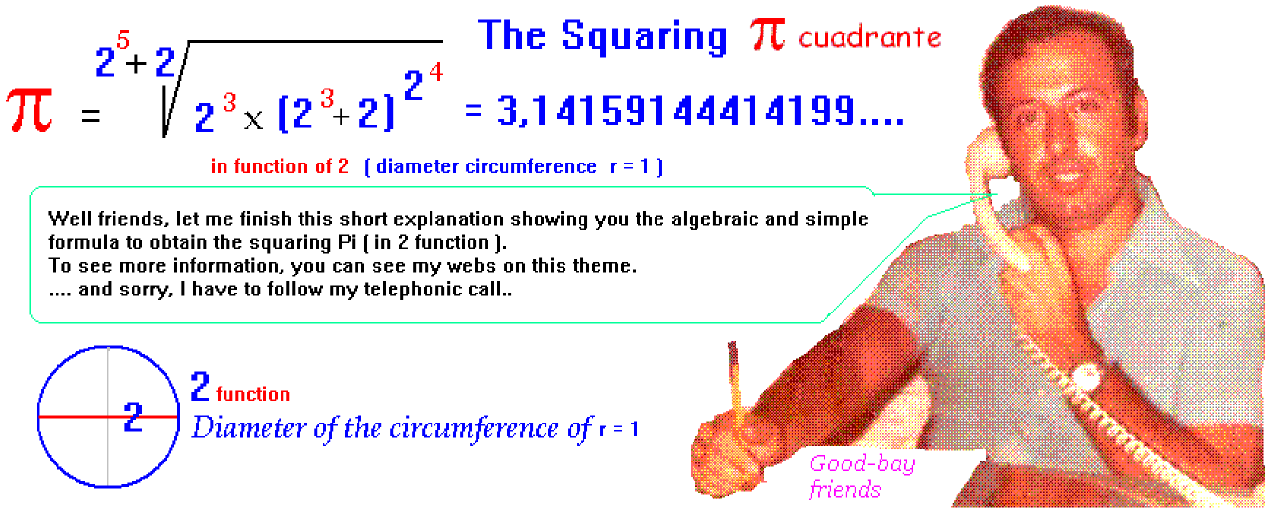




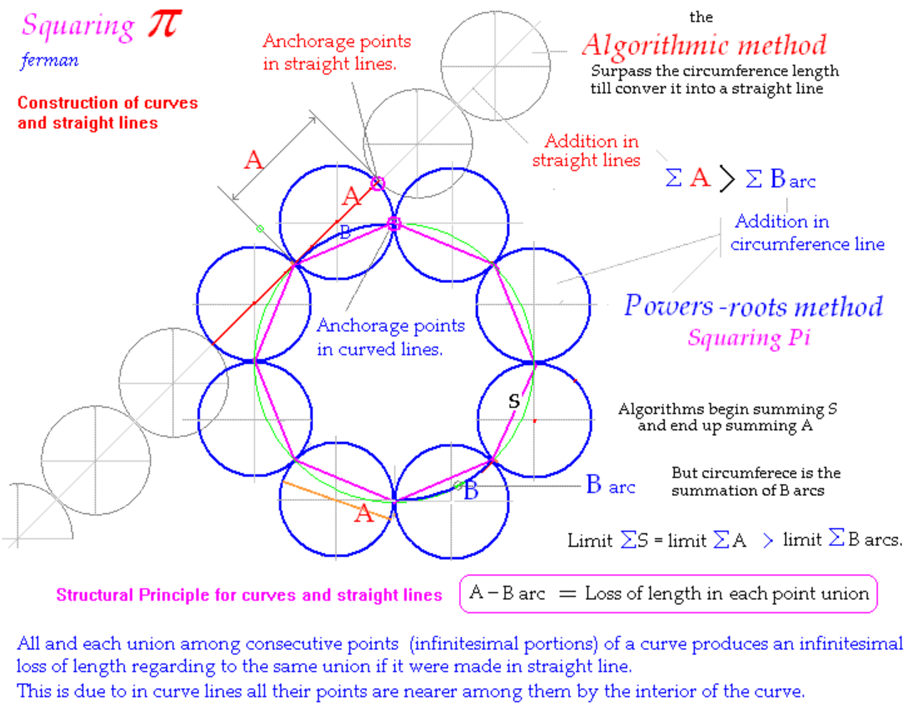




"" As we can see if we treat of making the circumference on the points centers, then the circumference must to be situated in the exterior of the union of the circumference points, and this way more large than the real one.
And this circumstance is given for any dimension of the points, already they are infinitesimal.
So, what give us the true radius of the circumference are the union points, but not its center. ""



Algorithms method for Pi sum sides of polygons (A) getting bigger length than summing arc of circumference B arc.

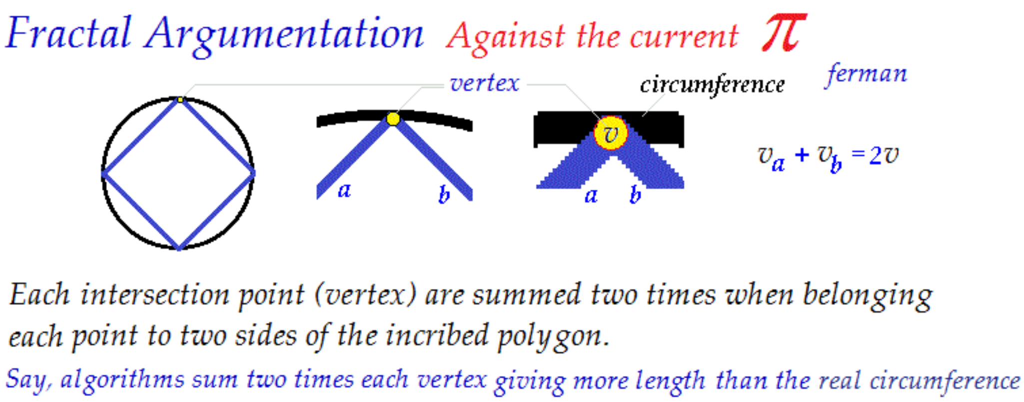


Theorem structural of curves: "With the same portions of line:
When more curvature, less interior structural angle and less interior structural longitude"
What demonstrate that the current Pi is erroneous, because is measure as a straight line.

All and each union among consecutive points (infinitesimal portions) of a curve produces an infinitesimal loss of length regarding to the same union if it were made in straight line.
This is due to in curve lines all their points are nearer among them by the interior of the curve.
Loss in circumference ---- (2,4189 x 10^-6) r.

Argumentations on the current Pi

Simple argumentation (in agreement to current Pi)
A.- The method of sum of polygons-sides inscribed to the circumference and another series used for obtaining the current number Pi have similar and parallel solutions, those which getting to their limits, the number of the infinitesimal portions of line are equal in the resultant straight line than in the initial curve line of circumference.
B.- So, it is correct to argue that the resultant addiction of portions of both lines give us the same length.
Double argumentation (contrary to the current Pi)
1.- Accepting the first consideration of the anterior argumentation (A) it is proposed and considered a second different argumentation.
2.- Straight and curve lines have different geometric and mathematical structure and properties, in such a way that the same quantity of portion of line has more dimension and length when they are extended in straight line than when they are shrink or bended in curve line due to these portions are now nearer by the interior of the circumference.
Fractal argumentation, contrary to the current Pi
Many and diverse are the argumentations and proofs contrary to the exactitude of the current Pi number, but to those mathematicians that like the general method for obtaining Pi by means of the addiction of the sides of the inscribed square to the circumference it is possible to offer them, as clear, logical and contrary argumentation, the fractal argumentation on the addition of the vertices of inscribed polygons.
When we inscribed a regular polygon inside a circumference, we use alone one point or dot of the circumference as vertex (v) for building two sides of the polygon. (See below drawing)
In this circumstance, when we sum any pair of sides with the same vertex, we sum this unique vertex (v) two times, one time belonging to each polygon side.
Say, in the adjustment of the circumference length any point (v) alone is summed one time; but in the algorithmic adjustment any vertex point (v) is summed two times.
This way, if for example the inscribed polygon has 4096 sides, then when summing we add 8192 vertices, which means that when we go approaching to the limit of sides we are summing more points or vertices than the circumference really has.
With which, the algorithmic addition of inscribed sides give us more length than the circumference has because we are adding more points or vertex than the existent ones.
Really this circumstance could be considered as a flaw of the process of summation.

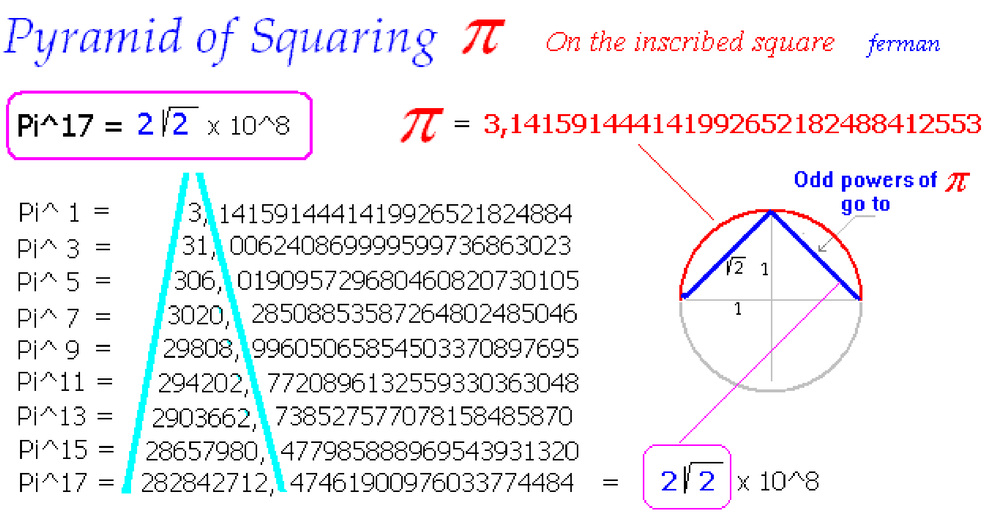


Pyramid of squaring Pi.

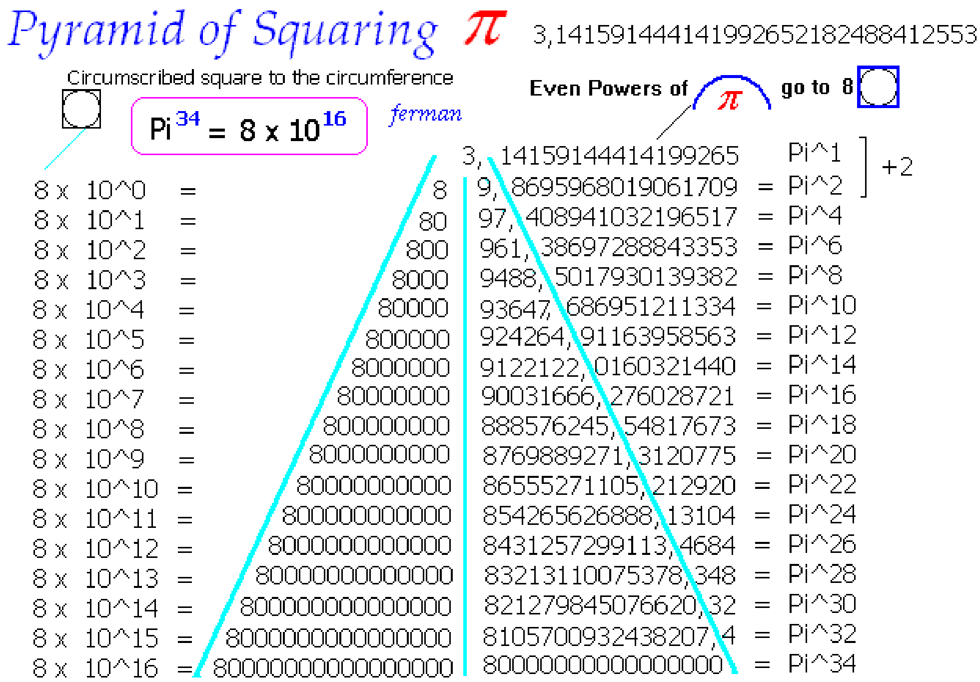
The Squaring Pi consists on a function (exponential) of the inscribed and circumscribed squares to the circumference.

3,14159144414199265218248841255 3.....

The pyramids of squaring Pi are numeric tables developed in pyramid or triangle form, which show us as successive powers of Pi go approaching to successive decimal powers of the inscribed and circumscribed squares to the circumference, to end up coinciding at certain level.
With the values of these levels of coincidence we can obtain the squaring Pi by means of root of these values.
Below is showed two pyramids that relate the squaring Pi with the perimeters of the inscribed and circumscribed squares to the circumference.
Firstly the relative to the inscribed square, where we observe that the Pi powers go approaching to the decimal product of the inscribed semi-square to the circumference, till get to (Pi^17) and (2 x Sqrt2 x 10^8) where is produced the coincidence of values.
Being this way in this level-point Pi^17 = 2 x Sqrt2 x 10^8



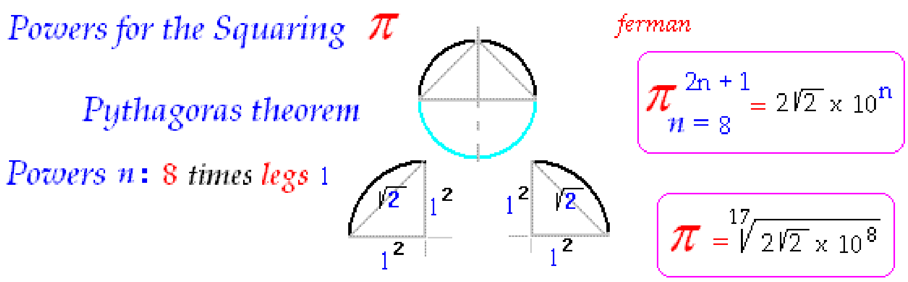
In this second pyramid, it is shown the power Pi^34 in relation with the perimeter of the circumscribed square to the circumference (8) by the decimal powers 10^16.



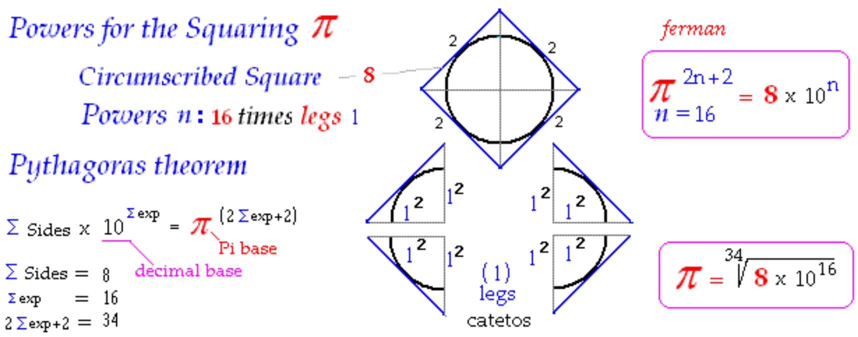
As we see, the odd powers of squaring Pi drive us to the inscribed square to the circumference, and the even powers drive us to the circumscribed square.
Here we observe as the Pi powers are approximately the double that the decimal powers (x10^n) applied to the perimeters of the squares, and it is due to get any decimal value applied to the sides perimeter is necessary the square of the number Pi (Pi^2 = 9.8696....)
We also observe that the powers of Pi in relation with the squares perimeters are the order of 2n+1 and 2n+2 due to for starting the pyramids of powers we need of +1 or +2 the powers of Pi to get the first term in the powers of the squares' perimeters.

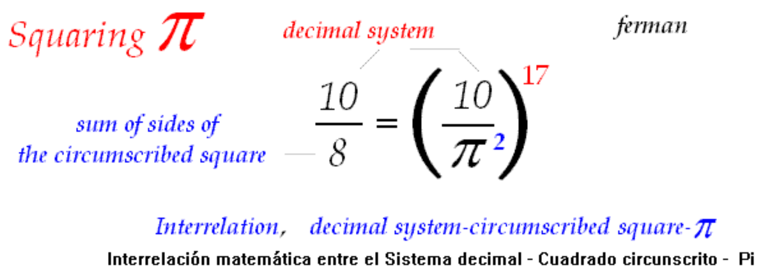
Reasoning the number n of powers

The number of decimal powers n (10^n) that multiply the sides of the inscribed and circumscribe squares to the circumference is the number of powers applied to the triangles legs that form these sides when they are obtained by the Pythagoras theorem.
It seems to be that the coincidence numbers in powers (n=8 and n=16) for the perimeters of the inscribed and circumscribe square to the circumference are produced to this level due to these n-numbers are the numbers of times that we must to multiply the sides (legs) of the triangles to build the perimeters of the squares, as for the Pythagoras theorem.
Say, to form a side of the inscribed square (hypotenuse) it is necessary to elevate any leg to the square, what gives us as result 4 powers of legs for any square-side and 8 powers to the both square-side inscribed to the semi-circumference (Pi)



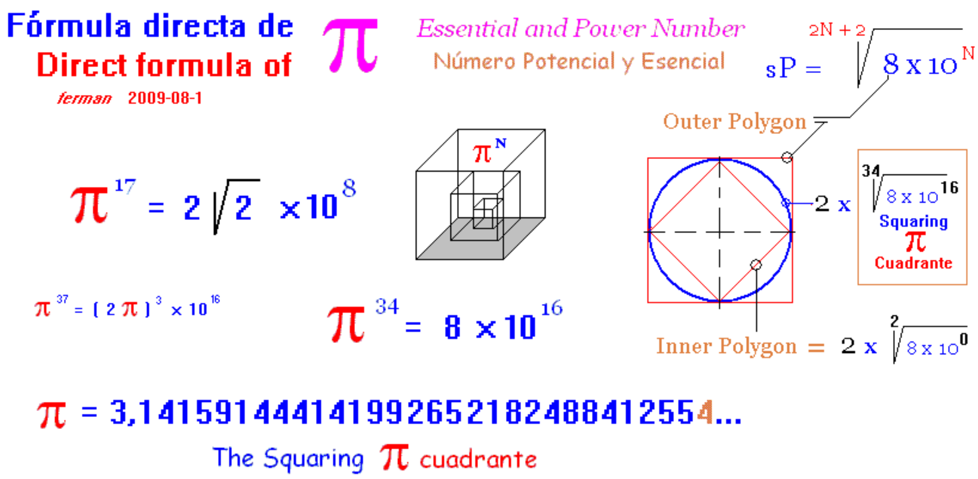
* For the pyramid of the circumscribed square the result will be double because of here it is not a semi-square, but a complete square.



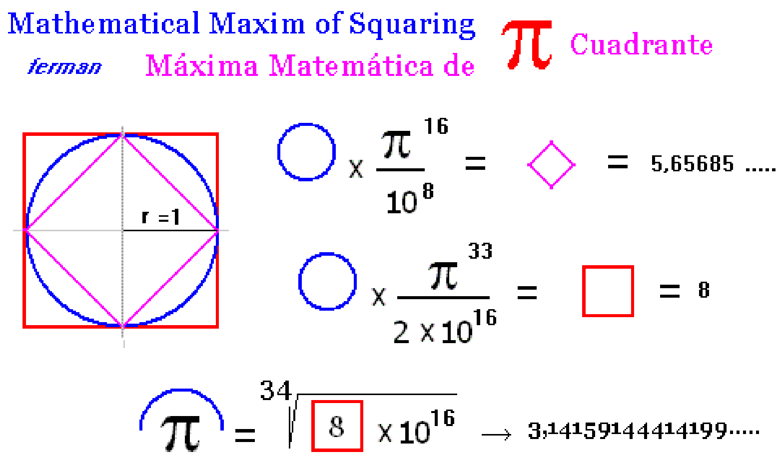


Direct formula of Pi
Exponential Number
Bend coefficient of the circumference

* Mathematical maxim of squaring Pi. : "If the circumference is built, contained, limited and changed depending on the value of its inscribed squares (inner and outer), and vice versa...... Then, a direct function of the perimeters of these squares that gives us the exact value of Pi ought to exist, and vice versa ..... A direct function of Pi that gives us the value of the perimeters of the inscribed (inner and outer) squares to the circumference also ought to exist."



"The logic and mathematical principles are not consequent neither they could accept that the two more regular figures of the geometry (square and circumference) didn't have a direct function of common structuring when they share out the same elements and construction parameters as they are the diameter of the circumference and the sides of their inscribed squares."



Subsequently I expose a direct formula (/s) for Pi, which, to have some properties and particular characteristics, we will denominate it squaring Pi.
Now well, when this Pi number has its own name, it already indicates us that some difference of value has to be between the **Algorithmic Pi** (current Pi) and the **Squaring Pi.**
And of course, this difference exists and takes place beyond the sixth decimal, that is to say, starting from a millionth.
But to understand the process of development of this number better, I will make a brief summary of its history.
1.- I work and study cosmology for about thirty years, and already a long time ago I reached the conclusion that the Pi number is basic in the construction of the cosmic structures.
The Pi number intervenes this way in the valuation of the unit of atomic mass; relationship between atomic mass and atomic radius; measure of the atomic density (density of atoms), etc.

And thinking about it a little, we can get the conclusion that it should be this way because if we contemplate the Cosmos in its essence, we see that to create the systems that we know when they have spherical construction, spiral form, circular motion, etc., here the only existent basic number is Pi, because this number defines and measures the spherical systems.

2.- Soon after of this, I was becoming aware that also the relationship among inferior systems as atoms and superiors ones as stars, all they should be structured by means of Pi, in this case for functions and powers of Pi.
This way the lineal dimensions between atoms and stars are of 6,28 x 10E22, that is to say, the radius of a star is 6,28 x 10E22 times bigger than the radius of a equivalent atom.

3.- And later on, I discovered something interesting for the mathematics: the mentioned Squaring Pi.
I realized that in the powers of Pi there were levels or cycles of coincidences or connection among the powers of Pi and exponential functions of Pi.
But I also could observe that these connections didn't coincide exactly with the value of the current Pi, but with a very approximate value.
And to that approximate value of Pi that fulfills the mentioned coincidences is to what I call Squaring Pi.
But, something much more interesting still was observed. Not alone connections among exponential functions of the squaring Pi exist, but also connections with functions of 2.
But even more, the squaring Pi belonged together, coincide or has quadrature with the decimal powers, for example, 10^8, 10^{16} etc.
Well, as all this seems very intricate, let us put some examples and formulas:

A. - We have said that connections exist between powers of the squaring Pi and functions of this number.
For example: (drawing)
(1) $Pi^{37} = (2\ Pi)^3 \times 10^{16}$
Here connections are given among high powers of Pi with functions of Pi and decimal powers.
And this property or coincidence is not given with the current number Pi.

B. - Also we have said that the power of the squaring Pi also makes connections with functions of 2,
For example:
(1) $Pi^{34} = 8 \times 10^{16}$
(2) $Pi^{17} = 2$ x root of 2×10^8
Of course, the value of the current Pi neither has these connections.

C. - But the squaring Pi gives us something more.
Beside of functions on itself and on functions of 2, the squaring Pi has connections with the decimal system, as we can see.
This way in the previous example, we see as beside functions of 2 (cube of 2, 2 by root of 2) the squaring Pi also has connections with decimal powers (10^8, 10^{16})
Summarizing, the squaring Pi is an approximate number to the current Pi, whose powers have correspondence and quadrature with its own spherical functions, with functions of 2 and with decimal powers.

Because well, from these last two formulas we extract the value of squaring Pi, which as we see they are not algorithms, but direct formulas.
So, the value of the squaring Pi is:

Squaring Pi
3,141591444141992652182488412553.....

Now then, and without polemic spirit, I would like to expose some observations that I make myself about the value of the current Pi.
Perhaps I don't know sufficiently the processes of obtaining of Pi, but although this, I ask myself some questions, such as:
Are the methods of obtaining of Pi totally consequent with the geometric reality of Pi, or are they sophisticated and complex systems of series, functions and algorithms that are not adjusted completely to the reality?
Personally, I have always been convinced that the Pi cannot be a number so rare, lonely, hidden, slippery, independent, without connection, etc. but just the opposite.
Pi, as basic element of the Cosmos, of the geometry, mathematics, etc., has to be an index number, open, dependent, connectable; with connections to different levels, numbers and functions, and therefore nothing to do with current of Pi.
So I understand that possibly, the squaring Pi is the true value of Pi, since different Pi numbers shouldn't exist.
Anyway, here we have a Pi number (Squaring Pi) that connects at many and repeated levels with own functions, with functions of 2, with decimal powers, and let us hope to discover more connections or connections soon.

Some simple quadratures of the Squaring π — Algunas cuadraturas simples de π cuadrante

ferman

π = 3,14159144414199265218248841255**4**..

π powers (potencias)	=	functions 2 (funciones de 2)	×	decimal powers
π^{17}	=	$2\sqrt{2}$	×	10^{8}
π^{34}	=	2^{3}	×	10^{16}
π^{51}	=	$\sqrt{2^{9}}$	×	10^{24}
π^{68}	=	2^{6}	×	10^{32}
π^{102}	=	2^{9}	×	10^{48}
π^{136}	=	2^{12}	×	10^{64}
π^{170}	=	2^{15}	×	10^{80}

Next, we can see quadrature of squaring Pi with roots of 8 (2E3) by decimal powers.

Squaring π Cuadrante = 3,14159144414199265218248841255**4**..

ferman 1-Agosto-2009

$$\sqrt[2]{8 \times 10^{0}} = 2,8284... \leftarrow$$ Inner square's semi-perimeter / Semiperimetro del cuadrado inscrito

$$\sqrt[4]{8 \times 10^{1}} = 2,9906...$$

$$\sqrt[6]{8 \times 10^{2}} = 3,0466...$$

....

Quadrature with roots $2n+2$ of $2^{3} \times 10^{N}$ / Cuadratura con raices $2n+2$ de $2^{3} \times 10^{N}$

$$\sqrt[30]{8 \times 10^{14}} = 3,1388...$$

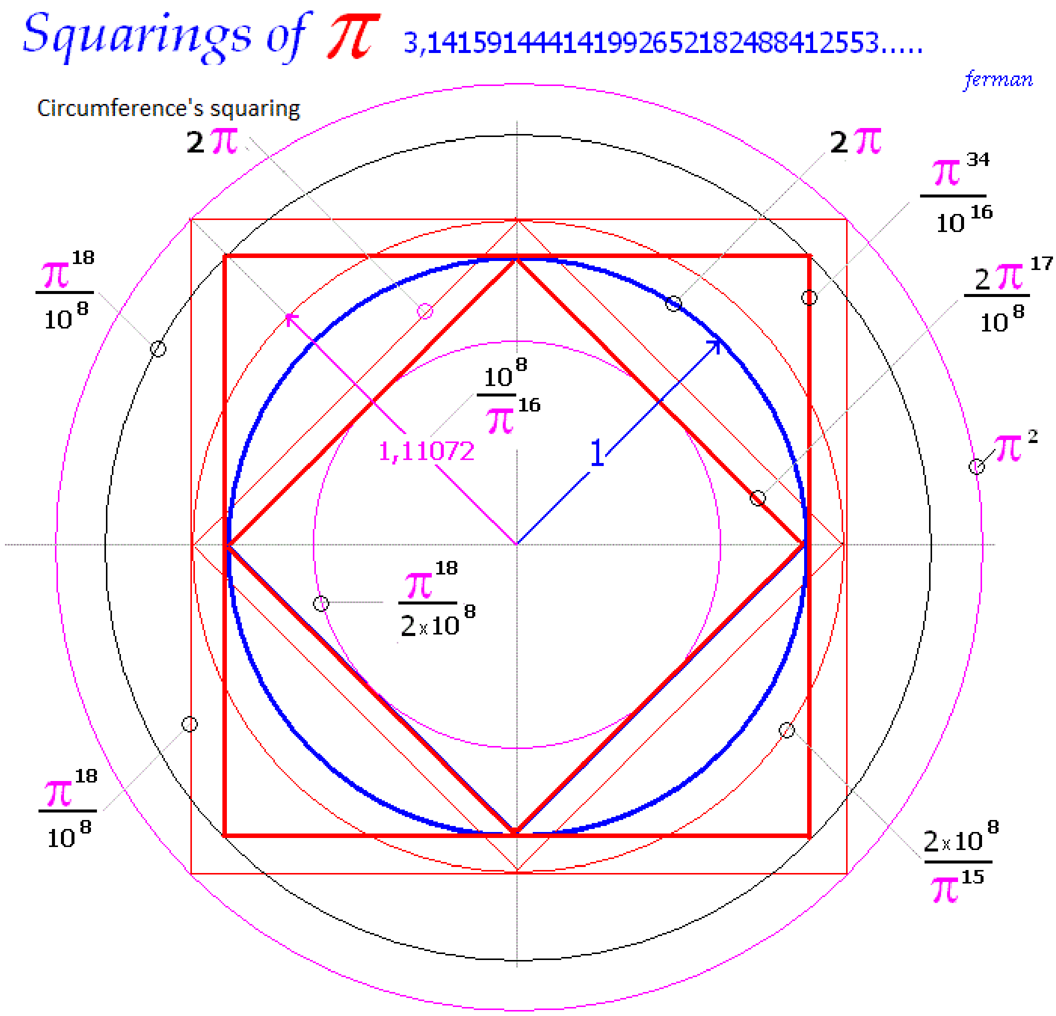
$$\sqrt[32]{8 \times 10^{15}} = 3,1403...$$

$$\sqrt[34]{8 \times 10^{16}} = 3,14159144414199 26... \leftarrow$$ Squaring π Cuadrante

$$\sqrt[36]{8 \times 10^{17}} = 3,1427...$$

$$\sqrt[38]{8 \times 10^{18}} = 3,1437...$$

Here we can see as the relationship or function among roots (Rn) and N indexes is: Rn = 2N + 2



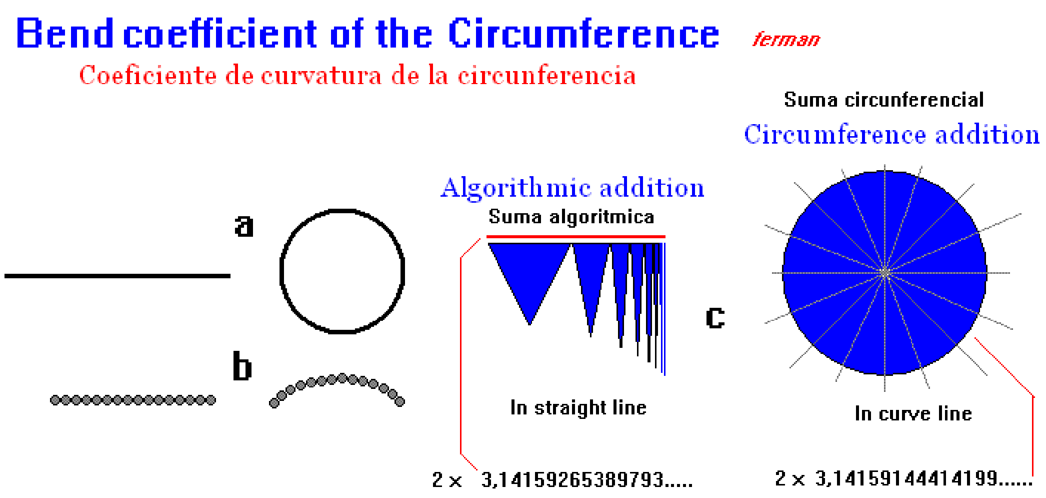
Author's considerations:

1.- The true Pi number should complete all the geometric and mathematical squaring here exposed.
2.- The true Pi number, as symmetric figure, structured and depending of the inscribed and circumscribed square to the circumference, besides to have total geometric dependence, also it must to have total mathematical dependence defined by means of mathematical formulas and functions of interrelation among the circumference y its inscribed and circumscribed squares.
3.- When not concurring in the current Pi this circumstances, those which the Squaring Pi has, this author consider that the Squaring Pi should be the correct Pi number.

Bend coefficient of the circumference.

""Well Ferman, very interesting, very promising, very.........
We have the Squaring Pi that is function of the perimeters of the inscribed and bounded squares of the circumference; that is function of 2; that is a very promising exponential number for the development of the cosmological mathematics, etc., but: How you would explain us the numeric difference between that Squaring Pi and the results that we obtain with the algorithms for Pi?"".
Well, I believe that this is explained, and I think it is also demonstrated, by means of the called bend coefficient of the circumference, and of course of any curve.
If we notice the algorithms, let us put as example to the Liu Hui's algorithm, in this algorithm we proceed to sum in lineal form (in straight line) to all the bases of the obtained triangles, while what would proceed would be the sum in curved form applying the bend coefficient that logically has to take the circumference.

As we see in the drawing (c):



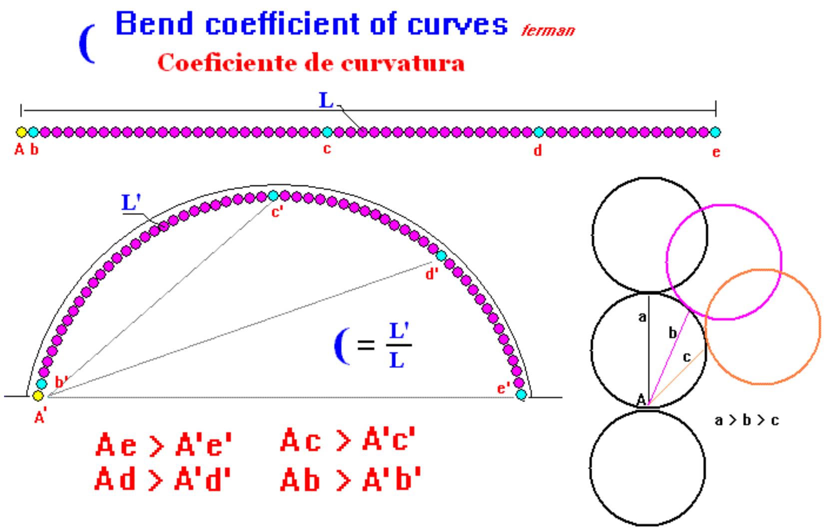
If we unite for their sum to all the triangles' bases in that we go dividing the circumference, we see that the result of the union of these triangular bases is a straight line.
But not, what we sought to obtain was a circumference or circle with the sum of these triangles.
Then geometrically it is not the same a thing that the other one.

And what really lacked in this sum.
Of course, the adaptation to the circular form by means of the application of the bend coefficient.
In this sense, if we apply the bend coefficient of the circumference to the results of the algorithmic Pi, we would obtain the real Pi, that is to say, the Squaring Pi.

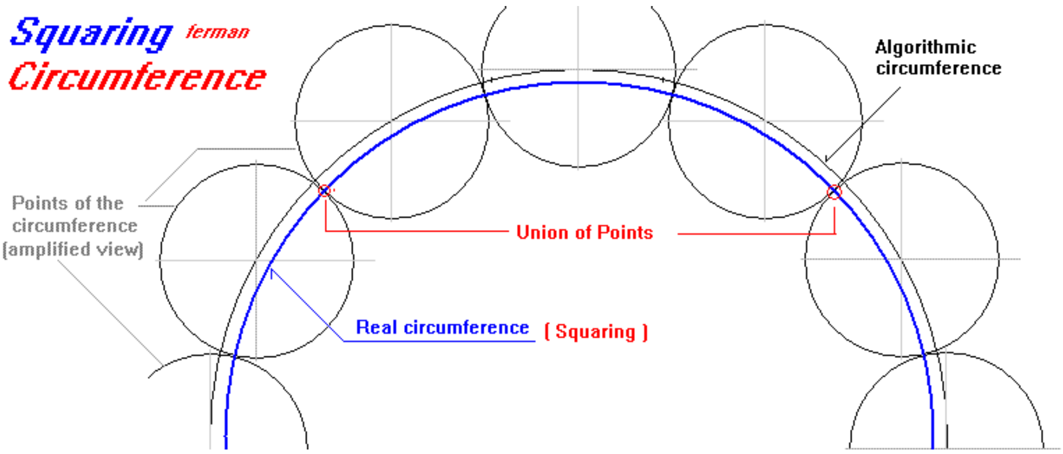
Revision of the bend coefficient of any curve

If for example we have a series of points forming a straight line (Anterior drawing, a - b) and we treat to twist this straight line to form a curve, we see that the points that compose it (b) they change their position and they join in a different way.
This alignment change of the points creates a new geometric form, which will take also accompanied a change of space distribution and of space dimension.
In this sense this author considers that this geometric change takes also accompanied a dimension and measure change, question that could take us to a conclusion or theorem on the transformation of straight lines into curved lines:

"Any straight line that is transformed into a curve suffers a dimensional variation so much for the concave side as for the convex one, appraisable by means of a bend coefficient (."



In theory (and from our three-dimensional perspective), if we go applying to any straight line successively bend coefficients with values every time bigger, geometrically we will go bending the straight line and transforming it into a curve, every time with more bend, uniting its tips for a certain value and getting this way a circumference, and later on, if we continue increasing the values of the coefficient, we will be able to go superimposing spires or circumferences some on the other ones until transforming the initial straight line into a single central point.
As we see in the previous drawing, if we bend a straight line for obtaining a curve, in it all and each one of its points is nearer than in the straight line.
This way, in the previous drawing, we see as in the curved line all its points are nearer some from other and their distances (for example b and c) among near points are smaller as the curve is more closed and therefore its coefficient of more bend.
Consequently we see that this dimensional reduction comes given by the same property and characteristic of the space. All this is a spatial consequence.
* Page to see first work about <u>Bend coefficient of the circumference and other curves.</u>
Now well, as in the case of the circumference what interests us is the interior side or concavity, then this degradation would be negative and its dimension would be smaller than the precedent straight line.
Concluding, for me, the algorithms don't give us the exact value of the circumference but the value that this circumference would have transforming it into straight line.
And vice versa: If to the algorithmic value that we give currently to the circumference we apply the coefficient of bend of the same one, we will obtain to the Squaring Pi that this theory proposes.



Therefore, and summarizing, the squaring o powers Pi stops to be a transcendental number to become an index and squaring number in the mathematical structure, and a basic and essential number in the cosmic structuring where it is the basic number to measure, relate and to build the dimensions of the different cosmic elements.

In the below formula, we can see as the decimal powers of the square's sides are intersected or crossed with the squaring Pi powers at N= 16, that is to say, where the squaring Pi is built.
To this point, we will call Inflection Point.

Squaring π Cuadrante
ferman

$$sP = \sqrt[2N+2]{8 \times 10^{N}}$$

Quadrature of N with squaring π
Cuadratura de N con π cuadrante

Squaring N cuadrante

$$\lim_{N \to \infty} N_{\pi} = \frac{8.(2N+2)}{N} = 16$$

Key moment

The key moment to conclude for my part that the algorithmic Pi wasn't correct but approximate, it was when working on the powers of this algorithmic Pi and arrived to the power 17, this power gave me**2,8284**4563.. x 10^8) coinciding to the two hundred-thousandth with the semi-perimeters of the inscribed square to the circumference, (**2,8284**2712.. x 10^8)
Similar coincidence could not be given in the mathematical logic.
Then for me the algorithmic Pi was not exact and it was necessary to square it with the semi-perimeter of the inscribed square of the circumference.
Then, the whole work and resolution of this quadrature begin to take place.

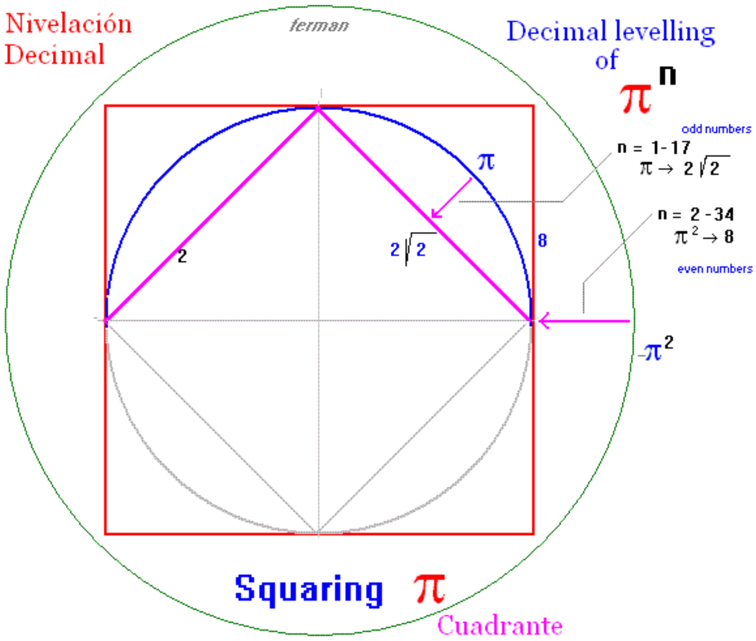
Decimal leveling

The decimal leveling would be a form of mathematical operation in certain circumstances.
This form is also used as way of expression of important numeric values.
For example if we have a high numeric value: 1.234.456.178.225, we can also express it (and commonly it is made in physics) as 1'234456178225 x 10E12.
As we see here, the object or finality is of expressing the total number by means of a single integer cipher, which is followed for many decimals by a decimal power.

However the decimal leveling not alone it is a form of expression of quantities, but a form of operating at different levels where the same norms and operative functions are used.

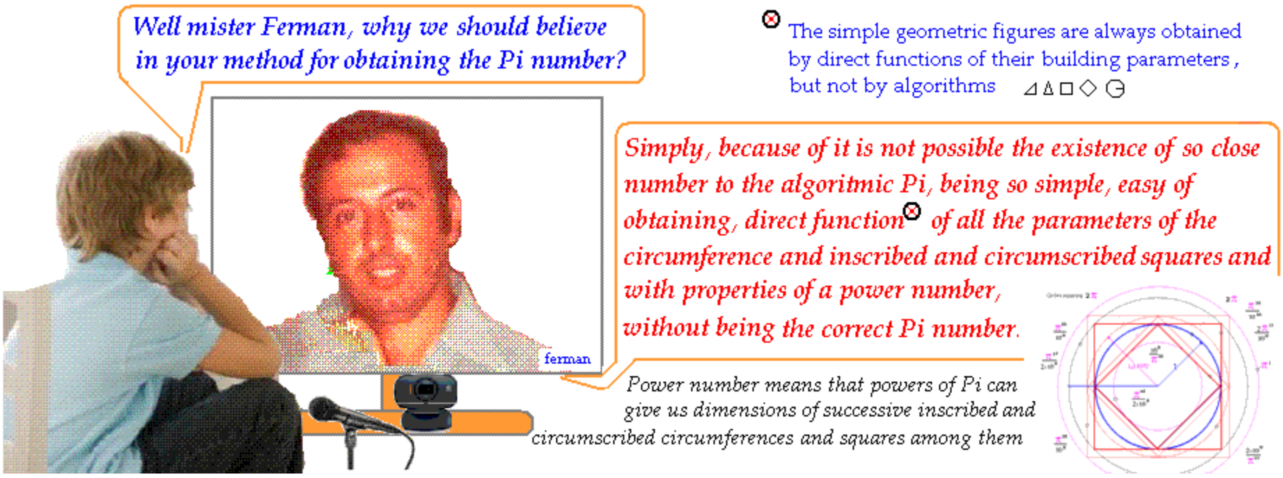
For example:
Let us suppose that stars and atoms have the same structural form, but however some (atoms) are quasi-infinitely smaller than the other ones (stars).
Let us say that the lineal dimensions of atoms are 6'28 x 10E22 times smaller than in stars.
In this case if we are operating for instance with stars' radii and in a given moment we want to move at the atomic level, alone we will have to introduce the factor of decimal leveling 6'28 x 10E22 to be operating with atomic radii.

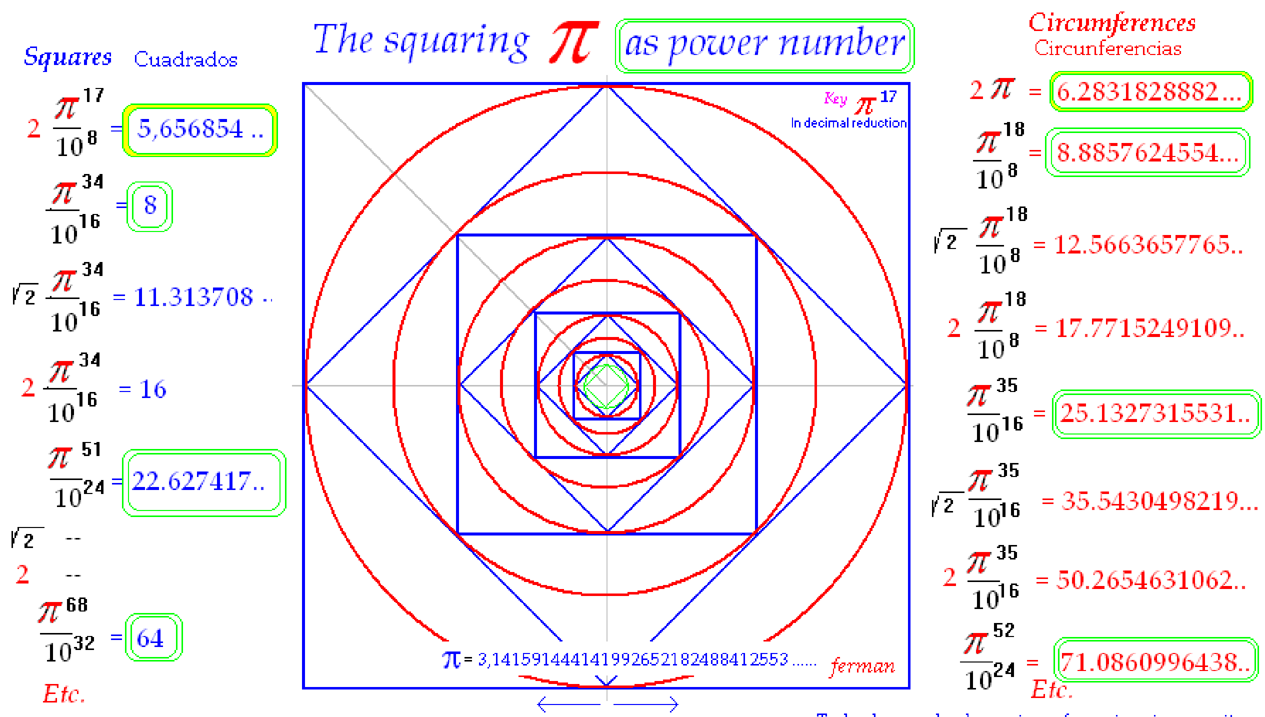
But you would ask me: Well but, for what all this could serve us?
Because of due to a similar form is used to obtain the squaring Pi.



Let us see: Squaring Pi is 3'141591444142....
If we elevate it to the square, we will have: 9'86959680 ....

If now we elevate it to the square again we will have: 97'408941 ....
But in this case we have two integer cipher and many other decimals.
To transform these two integer cipher into a unique one, we subject the quantity to the decimal leveling, that is to say, we divide it for 10 obtaining 9'7408941 .... x 10.
And we continue elevating to squaring Pi to the square, given us as result 9'613869728 .... x 10E2.
And so forth.........
Now well, analyzing the results that we go obtaining, we see that when we end up elevating to squaring Pi to the 17 power, an later on to be subjected it to the decimal leveling, the result gives us the value of the semi-perimeter of the inner square inscribed on the circumference of radius 1, that is to say, 2'82842712... (2 by root of 2) x 10E8
And if we continue elevating to squaring Pi until taking to the 34 power, (also leveling), we see that the result coincides with 8, that is to say, the value of the bounded square of the circumference of radius 1.





All these circumcribed squares and circumferences are power functions of squaring Pi, and vice versa, but not of the algorithmic Pi.

From inside to outside
Fourth dimension of space

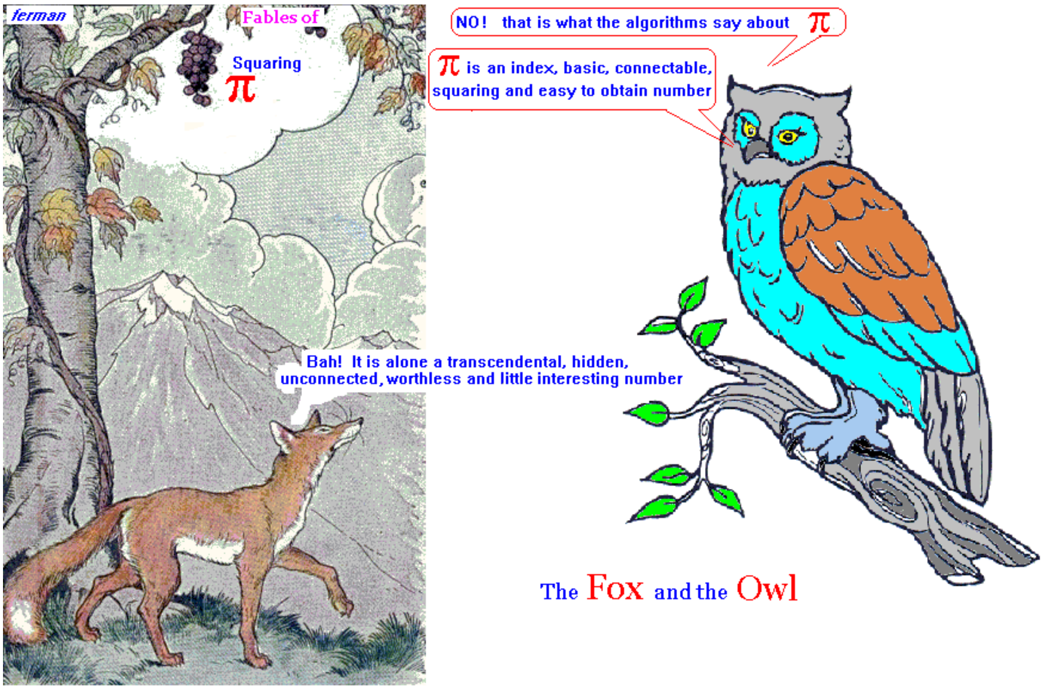
Todos los cuadrados y circunferencias circunscritos son función potencial de Pi cuadrante, y viceversa, pero no del Pi algoritmico

Different operations (as multiplication, division, powers) among these squares and circumferences follow given us large or small circumscribed and inscribed squares and circumferences, which also are in turn power functions of squaring Pi.

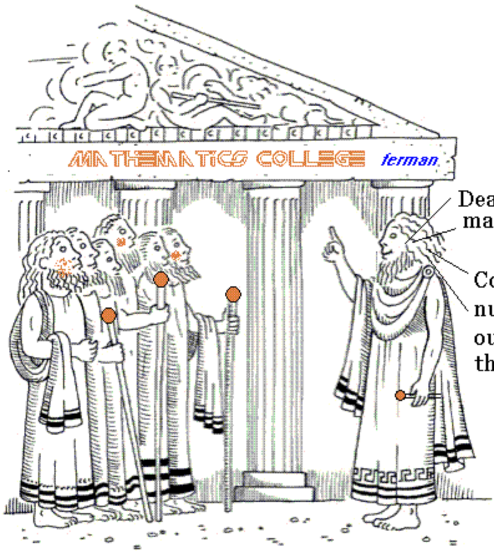
This way, the squaring Pi has the properties that the correct Pi should have, while the algorithmic Pi doesn't have.

Por tanto, el Pi cuadrante tiene las propiedades geometrico-matematicas que el Pi correcto debería tener, mientras que el Pi algoritmico no las tiene.

π Fables

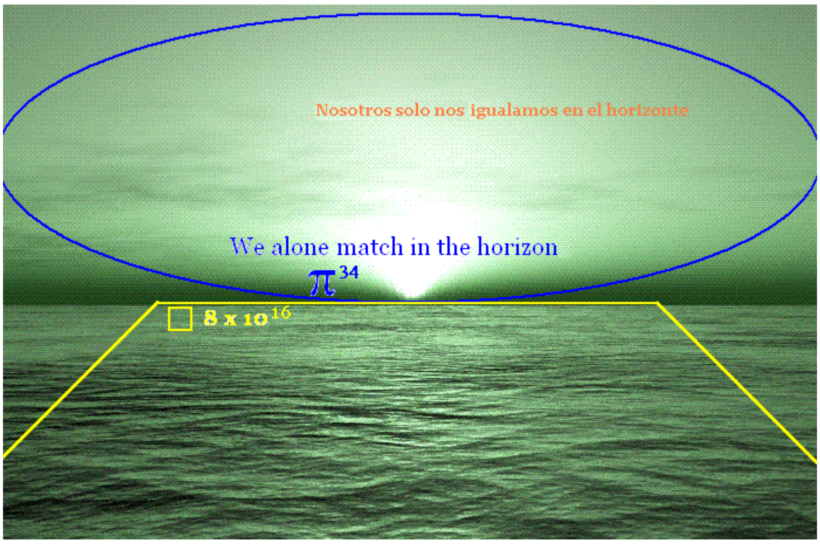


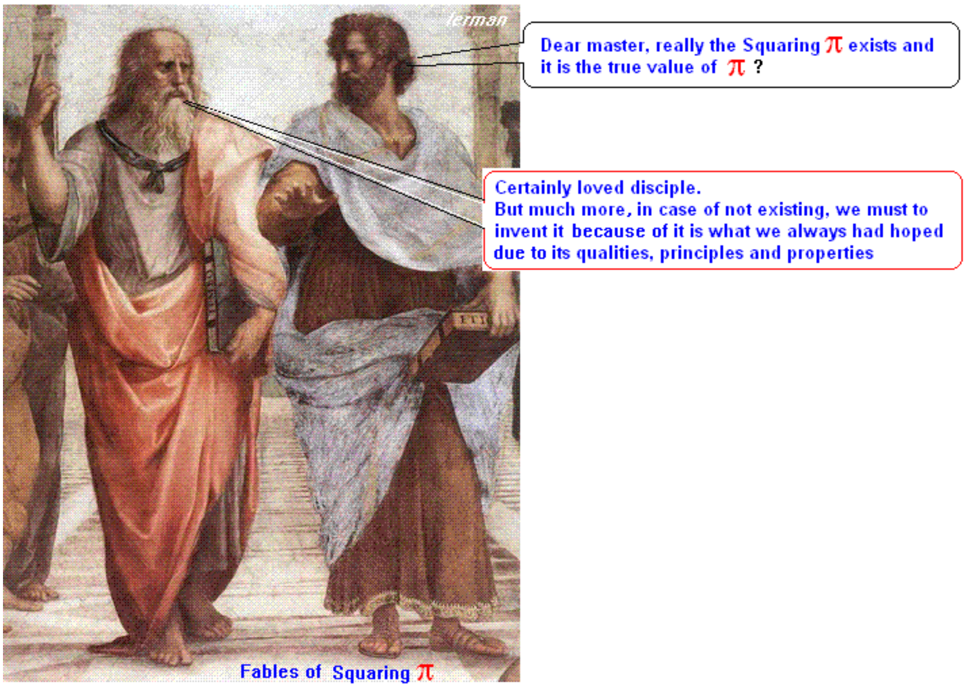
The Fox and the Owl



Dear mathematicians, do you really think that in mathematics can be given chances?

Could be given a squaring number closed to the Pi number that is function of the perimeters of the inner and outer squares to the circumference; that is function of 2; that has power functions; that .... Not being the true Pi?





The essence of Pi

To show a little the essential of Pi in Cosmology, I put several simple formulas, pick out from my atomic model.

In the following formula we see the Mathematical Unit of Atomic Mass, which also uses the cubic root of 2 when this root coincides nearby with the metric units at atomic level.

Same it will be made later with the Unit of Atomic Radius.

UMMA Unidad Matematica de Masa Atomica

ferman Mathematical Unit of Atomic Mass MUAM

$$\frac{4}{3}\pi^2 \sqrt[3]{2} \times 10^{-25} \text{ gms.} = 1{,}65799\ldots \times 10^{-24} \text{ gms.}$$

Deducida de la fórmula de las dimensiones atomicas

Hidrógeno.

Aw Peso atomico Atomic Weight

$$\mathrm{Aw}\ \overbrace{\frac{4}{3}\pi^2 \sqrt[3]{2}}^{\text{UMMA}} = \frac{4}{3}\pi^2 R^3 \sqrt{\mathrm{Aw}} \quad \text{g / cm.}$$

$R^3 \rightarrow \times 10^{-25}$ cms.
UMMA $\rightarrow \times 10^{-25}$ grms

Donde
Where
$R^3 = \sqrt[3]{2} \times 10^{-25}$ cms. $\longrightarrow$ H Radio = $0{,}50132 \times 10^{-8}$ cms.

In the following drawing we have the Mathematical Unit of Atomic Radius.

URA Unidad de Radio Atómico Hidrógeno

ferman

Unit of Atomic Radius

$$\pi^2 R^3 = \sqrt[3]{2} = 1,259921$$

$$R^3 = 0,12766 \qquad R_{(URA)} = 0,503523 \times 10^{-10}\ \text{m.}$$

To obtain the atomic radii $URA \times \sqrt[6]{Aw}$

(e.i) Ejemplo: Osmio (osmium)

$$\text{Radius Osmium} = 0,503523 \times 10^{-8}\ \text{cms.} \times \sqrt[6]{190} = 0,503523 \times 10^{-8} \times 2,40 = 1,20 \times 10^{-8}\ \text{cms.}$$

Below, the drawing of the Atomic Radii formula is showed.

UMMA Unidad matemática de masa atómica

Mathematical unit of atomic mass

ferman

Hidrógeno _hydrogen

$$UMMA = \frac{4}{3}\sqrt[3]{2} = \frac{4}{3}\pi^2 R^3_{cm} = 1,679894 \times 10^{-24}\ \text{g.}$$

Next, we see the formula of the atomic density, that is to say, the density of atoms according to its mass and volume.

$$\text{Atomic density} = \pi\sqrt{Aw}$$

And in the following drawing, we have the distances where the orbital of star and atoms are located (Planets and electrons).

Cosmic spiral

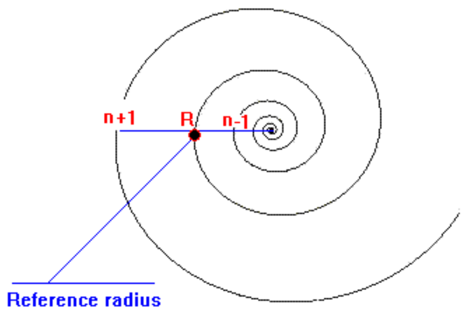
Espiral Cósmica

$$r_n = R.\left(\frac{\pi}{2}\right)^{\pm n}$$

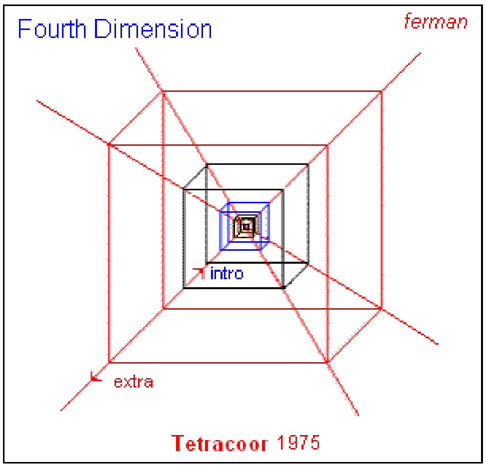
r_n = Anteriors or posteriors radii from R

R = Value of the radius R that is taken as reference.

n = Number of position of the radius r regarding to R.



Fourth Dimension

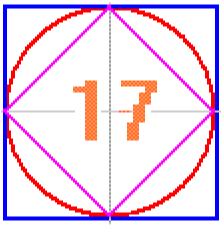


Tetracoor 1975

This author understands that the Squaring Pi can be the reason and guide in the structuring of the Cosmos through the Fourth Dimension, or exponential dimension of space-time.
And it is so because this Fourth Dimension seems to have a clear parallelism regarding to the property and exponential structure of Pi that before we saw.
Regarding it, let us remember that the Fourth Dimension is an exponential form of structuring of space-time (the structuring of energy and matter) by means of which the cosmic energy is constituted in material points that go accumulating until creating gravitational systems or material units such as atoms, those which in turn unite to form other systems with equal characteristics as they are the stars, which unite in turn among them to form other bigger systems, and so forth.
And vice versa, that the stars are constituted by atoms those which in turn are constituted by sub-atoms and so forth through the Fourth Dimension of the space.
This form is represented by the previous drawing, the Tetacoor. (Tetra-coordinate)

Last consideration of the author

The squaring Pi has many own and particular properties that give it the category of special number.
Perhaps for many years would have discussion about if it is the true number Pi or not, but its particularities and properties will be forever.



Symbolism

References.

1.- • Schepler, H. C. (1950). "The Chronology of Pi". Mathematics Magazine. Mathematical Association of America. **23** (3): 165–170 (Jan/Feb), 216–228 (Mar/Apr), and 279–283 (May/Jun). doi:10.2307/3029284.. issue 3 Jan/Feb, issue 4 Mar/Apr, issue 5 May/Jun

2.- Arndt, Jörg; Haenel, Christoph (2006). Pi Unleashed. Springer-Verlag. ISBN 978-3-540-66572-4. Retrieved

3.- Boeing, Niels (14 March 2016). "Die Welt ist Pi" [The World is Pi]. Zeit Online (in German).

3.- Preuss, Paul (23 July 2001). "Are The Digits of Pi Random? Lab Researcher May Hold The Key". Lawrence Berkeley National Laboratory. Retrieved 10 November 2007.

4.- Machin's Formula and Pi http://www.pi314.net/eng/machin.php

5.- Pi Formulas -- from Wolfram MathWorld